

The City of Hickory's Public Utilities Division is pleased to present you, our customers, with this year's Annual System Performance Report. This report is required by House Bill 1160, the Clean Water Act of 1999. The purpose of this report is to display the past year's wastewater treatment performance. The following data includes average concentrations discharged into streams and any events of permit noncompliance. The City of Hickory owns and operates three (3) wastewater treatment facilities and 501 miles of collection system lines. The Northeast Wastewater Treatment Facility and the Henry Fork Wastewater Treatment Facility are staffed 24 hours a day with state certified operators and the Hickory-Catawba Wastewater Treatment Facility in the Town of Catawba is staffed with two state certified operators. These facilities and the collection system were designed and constructed to properly transport wastewater and then treat the wastewater to meet stringent discharge requirements. During the past year, our Facilities collected and treated 2.28 billion gallons of wastewater. The effluent discharge from all plants is disinfected prior to entering the receiving streams. As this report indicates, we are committed to protecting our most valuable resources, water and people.



ANNUAL WASTEWATER QUALITY REPORT

JULY 1, 2020 TO JUNE 30, 2021

Mission Statement: *To promote and protect the environment, health and natural resources of our customers through responsible stewardship in the treatment of wastewater returned to our streams and lakes.*

NORTHEAST WASTEWATER TREATMENT FACILITY

City of Hickory
Northeast Wastewater Treatment Facility
310 Cloninger Mill Road, Hickory, NC 28601

NPDES Permit Number: NC0020401
Operator in Responsible Charge: Keith Rhyne, WWT-4
Telephone Number: (828) 322-5075

The Northeast Wastewater Treatment Facility is located at 310 Cloninger Mill Road, Hickory NC. It is a 6.0 MGD wastewater treatment system which accepts and treats wastewater from locations in Northern Hickory, portions of Eastern Caldwell County, and portions of Southern Alexander County.

The facility is an advanced secondary treatment process that utilizes Carrousel Oxidation Ditch Technology that's capable of removing BOD, nitrogen and phosphorus. The effluent is chlorinated to remove pathogenic bacteria that might be present and then dechlorinated to remove the residual chlorine left before it is discharged into the receiving stream. The biosolids residuals removed as part of the treatment process are transported to the Regional Compost Facility for processing into Class A-EQ compost.

PERMIT PARAMETERS	Limits			Actual Monthly Average July 1, 2020 to June 30, 2021											
	Monthly	Weekly	Daily	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21
Flow (MGD)	6 MGD	-	-	2.8	3.7	3.2	3.5	3.7	3.4	3.1	3.7	3.6	3.0	2.7	2.4
BOD	30mg/l	45mg/l	-	4.1	4.2	5.0	7.2	7.0	4.1	3.6	4.2	3.9	4.5	5.0	3.9
NH3-N	6mg/l	18mg/l	-	0.4	0.24	0.09	0.12	0.26	0.12	0.15	0.28	0.24	8.6	2.0	1.45
TSS (solids)	30mg/l	45mg/l	-	7.8	9.0	7.1	15.0	11.0	8.5	3.9	3.7	3.7	5.2	5.3	3.5
Fecal Coliform	200/100ml	400/100ml	-	1.7	3.5	4.6	5.7	5.5	1.4	1.6	1.9	1.7	1.3	1.5	1.0
pH	-	-	6-9	6.4	6.6	6.5	6.4	6.5	6.2	6.3	6.4	6.4	6.4	6.4	6.1
Total Chlorine	-	-	28ug/l	0	0	0	0	0	0	0	0	0	0	0	0
Toxicity	Quarterly Pass or Fail			Pass			Pass			Pass			Pass		

Noncompliance Violations				
Date	Violation	Actual	Reason	Environmental Impact
April 2021	Monthly NH3 Limit	8.6 mg/l	Upset of the Nitrification Process	None
Plant Overflows				
Date	Location	Spill	Cause	
8/6/20	RAS Manhole	400 gal	Power Interruption. Pump reset failure	
8/15/20	Influent Pump Station	60,000 gal	Heavy rainfall and flooding	
11/20/20	Influent Pump Station	70,833 gal	Heavy rainfall and flooding	

HENRY FORK WASTEWATER TREATMENT FACILITY

City of Hickory

Henry Fork Wastewater Treatment Facility

4014 River Road, Hickory, NC 28602

NPDES Permit Number: NC0040797

Operator in Responsible Charge: Robert Shaver, WWT-4

Telephone Number: (828) 294-0861

The Henry Fork Wastewater Treatment Facility is located at 4014 River Road, Hickory, NC. It is a 9.0 MGD Wastewater Treatment System which accepts and treats wastewater from locations in SE and SW Hickory, Hildebran, portions of Eastern Burke County, and Longview.

The facility is an advanced secondary treatment biological nutrient removal (BNR) system with oxic/anoxic stages of treatment. Chlorine gas disinfection and Sulfur Dioxide gas dechlorination are utilized, as well as cascade post aeration. The facility is constructed as two treatment trains that can be operated independently of one another. The biosolids residuals removed as part of the treatment process are transported to the Regional Composting Facility for processing into Class A-EQ compost.

Permit Parameters	Limits			Actual Monthly Average July 1, 2020 to June 30, 2021											
	Monthly	Weekly	Daily	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21
Flow (MGD)	9MGD	-	-	2.5	3.2	3.1	3.2	3.0	3.1	2.7	3.5	3.2	2.5	2.5	2.4
BOD Summer	19mg/l	28.5mg/l	-	2.74	3.51	3.47	4.01	-	-	-	-	-	4.37	3.80	3.48
BOD Winter	30mg/l	45mg/l	-	-	-	-	-	5.67	5.59	6.07	7.84	5.34	-	-	-
NH3 Summer	2.5mg/l	7.5mg/l	-	0.01	0.11	0.01	0.01	-	-	-	-	-	0.58	0.59	0.04
NH3 Winter	6.2mg/l	18.6mg/l	-	-	-	-	-	0.07	0.05	0.73	0.35	0.63	-	-	-
TSS (solids)	30mg/l	45mg/l	-	2.3	4.3	4.1	6.0	8.7	7.4	8.5	12.6	9.2	6.3	4.5	3.7
DO	-	-	Over 5	7.9	7.6	7.9	8.3	9.0	10.3	11.0	11.3	10.2	9.6	8.6	8.2
Fecal Coliform	200/100ml	400/100ml	-	4.2	9.1	20.0	16.0	12.1	5.6	12.7	4.7	3.3	2.9	5.4	14.0
pH	-	-	6-9	6.6	6.9	6.6	6.8	6.6	6.8	6.8	6.8	6.9	6.6	6.7	6.6
Toxicity	Quarterly Pass or Fail			Pass			Pass			Pass			Pass		
Bis(2-ethylhexyl) phthalate - Quarterly	28.5ug/l	-	28.5ug/l	0	0	0	0	0	0	0	0	0	0	0	0
Total Chlorine	-	-	28ug/l	0	0	0	0	0	0	0	0	0	0	0	0
Total Copper	27.06ug/l		34.65ug/l	11.6	11.8	8.6	4.2	10.3	7.3	7.4	6.0	7.1	8.2	7.0	8.5

Noncompliance Violations				
Date	Violation	Actual	Reason	Environmental Impact
NONE				

CITY OF HICKORY-HICKORY COLLECTION SYSTEM

City of Hickory
Hickory Collection System
76 North Center Street, Hickory, NC 28601

NPDES Permit Number: WQCS00020
Operator in Responsible Charge: Kevin Hutchison, CS-4
Telephone Number: (828) 323-7427

The Hickory Collection System generally consists of 501 miles of utility lines; 479 miles of gravity sewers and 22 miles of pressurized or force mains. 50 Duplex pumping stations and 1 simplex pumping station ensure that service is available to the low points in the system. The Hickory Collection System serves the greater Hickory area and parts of Catawba County, parts of Burke County and the Bethlehem Community of Alexander County.

Reportable Collection System Failures			
Date	Location	Spill	Cause
08/05/2020	1845 9 th St Ct NW	12,500 Gallons	2" of rain in less than a hour
08/15/2020	2061 Snow Creek Road	113,000 Gallons	5.5" of rain in 2 hours
08/15/2020	1199 16 th St SE	1,200 Gallons	5.5" of rain in 2 hours
08/25/2020	3987 Section House Rd	3,150 Gallons	Debris in sewer line
11/14/2020	Henry Fork sewer plant influent pipe	1,500,000 Gallons	Heavy rain from tropical storm washed river bank out and exposed pipe to river
01/15/2021	141 30 th Ave NW	630 Gallons	Collapsed manhole beside creek bank
03/27/2021	1845 9 th St Ct NW	274,000 Gallons	Pipe failure in basement of pump station
06/30/2021	2013 Snow Creek Rd	34,000 Gallons	Pipe failure on force main

Wastewater collection systems are designed to handle **only** three things – used water, human body waste and toilet paper. It is very important to keep all foreign materials, such as grease and other household debris from entering the system, as these can cause blockages. Most sewer backups occur between the house and the City's sewer main. The property owner is responsible for correcting this problem.

Many disinfecting wipes and baby wipes are touted as disposable, and some are even labeled as "flushable", but both contribute to sanitary sewer overflows (SSOs) throughout the sanitary sewer system. Their cloth-like material doesn't break down in the sanitary sewer system like toilet paper. Instead, they block sewer lines and clog pumps throughout the system, which increases maintenance and repair costs. Please help the city protect the environment and reduce costs by disposing of these items in the trash, not down the drain.

Property owners are responsible for the care and maintenance of service lines from their homes or businesses to the sanitary sewer mains in the street. The Hickory City Code also prohibits property owners from planting trees, shrubs and other vegetation on sewer lines and easements, covering manholes, erecting fences or permanent structures on sewer lines and easements, or damaging sewer lines in any manner.

Significant achievements by Collection System Staff for this year include;

- SSO rate of 0.016 per mile of collection system, or 1 spill for every 62.6 miles of collection system
- 100% of high priority sewers inspected at least once every 6 months
- 326,744 feet of sewer line cleaned, or 13%, exceeding the 10% required in our permit
- 26,962 feet of sewer line treated for root control
- 51 creek crossings inspected and maintained

The City of Hickory is committed to protecting the quality of the Catawba River and the environment. The water returned to the Catawba River from the NPDES permitted wastewater treatment plants is higher quality water by most parameters than when it was removed for drinking water treatment from Lake Hickory.

While grease continues to be a significant contributor, none of the sanitary sewer overflows in the sewer collection system were caused by grease over the past year, you can continue to help the City of Hickory Public Services Department reduce the number of overflows by following these simple steps.

- Collect grease, fats and oils from cooking in a container and dispose of it in the garbage instead of pouring it down the drain.
- Place a wastebasket in each bathroom for the disposal of items such as disposable diapers, baby wipes, disinfecting wipes, condoms and personal hygiene products. These products **DO NOT** belong in the sewer system.
- Call Public Services at (828) 323-7427 to report sewer overflows. By promptly reporting the overflow, the City is able to minimize the impact of the overflow to the environment.
- Report illegal dumping by calling Public Services at (828) 323-7427. Grease and other materials illegally dumped can lead to sanitary sewer overflows (SSOs), which are a public health, environmental and regulatory concern.
- Do not flush old/outdated medication or prescription drugs down the toilet. Take medication to one of the area drop off locations for proper disposal.

MEDICATION DISPOSAL: Catawba County Law Enforcement Agencies, in partnership with Foothills Coalition Operation Pill Stoppers, provide drop boxes at their facilities throughout the County for safe and proper disposal of medications and prescription drugs. Drop Box Locations: Catawba County Sheriff's Office, Claremont, Conover, Hickory, Newton and Maiden Police Departments.

Here is a list of drop off locations:

- Catawba County Sheriff's Office 100 E. Government Drive Newton, NC 28658
 - Terrell Satellite Office- Catawba Co Sheriff 8456 Sherrills Ford Road Sherrills Ford, NC 28673
 - Claremont Police Department 3301 E. Main St. Claremont, NC 28610
 - Catawba Police Department 107 S. Main St. Catawba, NC 28609
 - Conover Police Department 115 2nd Ave. NE Conover, NC 28613
 - Newton Police Department 411 N. Main Ave. Newton, NC 28658
 - Hickory Police Department 347 2nd Ave. SW Hickory, NC 28602
 - Maiden Police Department 201 W. Main St. Maiden, NC 28650
 - Brookford Police Department 1700 S. Center St. Hickory, NC 28602
 - Longview Police Department 2404 1st Ave. SW Hickory, NC 28602
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HICKORY-CATAWBA WASTEWATER TREATMENT FACILITY

(TOWN OF CATAWBA)

City of Hickory

Hickory-Catawba Wastewater Treatment Facility

104 6th Avenue NW, Catawba, NC 28609

NPDES Permit Number: NC0025542

Operator in Responsible Charge: David Archambault, WWT-4

Telephone Number: (828) 323-7427

The Hickory-Catawba Wastewater Treatment Facility is located at 104 6th Avenue NW, Catawba, NC. It is a 1.5 MGD wastewater treatment system that accepts and treats wastewater from locations in the Town of Catawba and Southeastern Catawba County.

The wastewater plant is an advanced secondary treatment process that utilizes oxidation ditch technology to treat wastewater. The effluent is chlorinated to remove pathogenic bacteria that might be present and then dechlorinated before it is discharged into the receiving stream. The biosolids residuals removed as part of the treatment process are transported to the Regional Compost Facility for processing into Class A-EQ compost.

Permit Parameters	Limits			Actual Monthly Average July 1, 2020 to June 30, 2021											
	Monthly	Weekly	Daily	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21
Flow (MGD)	1.5 MGD	-	-	0.08	0.11	0.13	0.13	0.14	0.15	0.13	0.17	0.15	0.09	0.09	0.08
BOD	10mg/l	15mg/l	-	0.70	0.34	0.32	1.9	0.33	1.4	0.79	1.2	0.89	2.0	3.7	0
NH3-N	2mg/l	6mg/l	-	0.02	0.03	0.02	0.02	0.05	0.16	0	0.9	0.03	0.01	0	0
TSS (solids)	30mg/l	45mg/l	-	0.45	0	0	0.22	0.29	0.22	2.0	0	0	0.28	0	0
DO			>6 mg/l	7.0	7.1	7.4	8.2	8.3	9.8	10.6	10.0	9.8	8.8	8.3	7.7
Fecal Coliform	200/100ml	400/100ml	-	3.1	1.7	1.3	1.0	1.1	1.0	3.6	1.1	1.0	1.1	1.7	1.0
pH	-	-	6-9	6.9	7.1	6.8	6.8	6.7	6.9	6.9	6.6	6.8	6.7	6.6	6.3
Total Chlorine	-	-	28ug/l	0	0	0	0	0	0	0	0	0	0	0	0
Toxicity	Quarterly Pass or Fail			Pass			Pass			Pass			Pass		

Noncompliance Violations				
Date	Violation	Actual	Reason	Environmental Impact
NONE				

CITY OF HICKORY-CATAWBA COLLECTION SYSTEM

City of Hickory
Hickory-Catawba Collection System
76 North Center Street, Hickory, NC 28601

NPDES Permit Number: WQCS00020
Operator in Responsible Charge: Kevin Hutchison, CS-4
Telephone Number: (828) 323-7427

The Hickory-Catawba Collection System generally consists of 40 miles of utility lines; 19 miles of gravity sewers and 21 miles of pressurized or force mains. 14 Duplex pump stations ensure that service is available to the low points in the system. The Hickory-Catawba Collection System serves the Town of Catawba and Southeastern Catawba County.

Reportable Collection System Failures			
Date	Location	Spill	Cause
NONE			

In the preceding tables you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we have provided the following definitions:

- **mg/L** – Milligrams per liter or parts per million
- **ug/L** – Micrograms per liter or parts per billion
- **DO** – Dissolved Oxygen. DO is the molecular (atmospheric) oxygen dissolved in water or wastewater.
- **BOD** – The rate at which organisms use the oxygen in wastewater while stabilizing decomposable organic matter under aerobic conditions. In decomposition, organic matter serves as food for the bacteria and energy results from its oxidation. BOD measurements are used as a measure of the organic strength of wastes in water.
- **TSS** – Total suspended residue in wastewater
- **MGD** – Million gallons per day
- **NH3 as N** – Ammonia
- **Fecal Coliform** – Indicator organisms used to measure the effectiveness of the disinfection process
- **Summer Months** – April 1st to October 31st
- **Winter Months** – November 1st to March 31st



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